Forum: United Nations Environment Programme

Issue: Implementing Measures to Improve International Cooperation to Reduce the Use of Plastic

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Introduction

Plastic is currently one of the most commonly used materials in the world, used in everyday life and for manufacturing, building, and transporting goods. In recent years, however, global concern has been raised over the environmental impacts of plastic when it accumulates over a long period of time. Currently in the world, there are 7.8 billion tons of plastic, much of which goes to waste. Much of this plastic is single-use and nonbiodegradable, which means it accumulates in landfills. Currently, only 9% of plastic globally gets recycled. When plastic accumulates, it has seriously negative environmental impacts, including taking up land, contaminating water sources, and harming the ocean and marine life.

There are many organizations working to reduce plastic waste and its harms on the environment, including Greenpeace, Clear Blue Sea, and the UNEP. NGO's like Greenpeace and Clear Blue Sea take action such as calling on corporations to do more to reduce their environmental footprint, establishing ocean sanctuaries to help marine life recover from the effects of plastic, and deploying technology to clean up plastic from the oceans. Additionally, the UNEP has passed several resolutions (see "Relevant UN Resolutions and Treaties" below) aimed at making efforts to make sure global actors reduce their contribution to the plastic waste problem in the world.

Despite the previously-mentioned global concern about the harms of plastic on the environment and organizations working to help solve the plastic waste issue, there are several main obstacles blocking solutions from being carried out. Some of these obstacles are that plastic is such a widely used and common material, used daily for shopping, eating, building, transportation, and packing, that it would be incredibly difficult to convince everyone in the world to stop using plastic, especially those who are not as concerned about the environment or those who live in poor areas that rely on plastic as a cheap material. To continue, many countries in the world, especially those that are industrializing or major manufacturers see profit and the economy as more of a priority than the environment, and it would be difficult to convince them to see the importance of preserving the environment.

Taking into consideration the current work being done and the obstacles to further progress on this issue, there are steps that need to be taken for international cooperation on this issue. For instance, further UN resolutions need to be written and passed, involving the countries that are affected by and contribute most to this issue, and they need to emphasize the importance of solving this issue to achieving the sustainable development goals. In addition, summits and talks (similar to the Paris Climate talks) need to be held involving world leaders addressing the importance of this issue and compromises to solve it.

Definition of Key Terms

Process of producing plastic

Plastic is normally made with four steps: first, preparing the raw materials, polymerization reactions, processing the polymers into polymer resins, and producing the finished products. Plastic is initially made with elements such as carbon, hydrogen, nitrogen, chlorine, and sulfur, taken from material such as crude oil, natural gas, and coal. Those materials are processed into monomers, which are then polymerized (turned into polymers) in large polymerization plants. This process produces polymer resins, which then are further processed by adding fire retardants, plasticizers, and dyes. Then, they are molded into their final products, differing depending on the purpose of the plastic, in ways such as extrusion (for plastic films), injection molds (for plastic containers), blow molding (for plastic bottles), and rotational molding (for large plastic items such as children's toys or boats).

Crude oil (consequences)

Crude oil, or unrefined petroleum gas, is a main ingredient in plastic production. It provides ethylene and propylene, and contains the hydrocarbons that make up the monomers needed for making plastic. However, it has several major environmental impacts, including oil spills during its transportation, which have devastating effects on the ocean and the animals that live in it, coating them in oil and taking long periods of time to clean up, which can further hurt the environment. Additionally, drilling for crude oil and hydraulic fracturing, also known as fracking (another method of oil production) disturbs marine ecosystems and contaminates wastewater, which, once disposed of by being injected into the ground, can possibly cause minor earthquakes.

Recycling

Recycling is the collection and reuse of certain kinds of waste products for other purposes. Items that can be recycled include iron and steel, aluminum, glass, paper, wood, and plastic. Recycling has many benefits, including decreasing the amount of waste deposited into landfills, and reducing pollution. Plastics make up more than 10% of recycled materials. When plastics are recycled,

they are sorted then melted into new forms. Other forms of reducing waste similar to recycling include reusing (using containers such as metal water bottles or other products that can be used multiple times before being disposed) and upcycling (creatively reusing products that would have gone to waste for ways such as arts and crafts, or refashioning into something of more value).

Plastic disposal methods

When it is not recycled, plastic is either disposed of in landfills or incinerators. More than three-quarters of plastic waste ends up in one of these two destinations. When plastic is burned in incinerators, it is “gone”, but this has negative effects including the release of toxic chemicals, which can be a public health risk. When plastic ends up in landfills, it stays there and takes up space, as much of plastic is not biodegradable.

Types of plastic

There are two major kinds of plastic-thermoset and thermoplastics. Thermoset plastics, once hardened, cannot return to their original forms. They are harder and more durable than thermoplastics. Types of thermoset plastics include polyesters and polyurethanes. They are often used for auto parts, aircraft parts, and tires. Thermoplastics are softer than thermoset plastics when heated, and can be remolded into their original forms. Types of thermoplastics include polyethylene and polypropylene. They are often used for films, fibers, and packaging.

Great Pacific Garbage Patch

There are five large offshore plastic accumulation zones, the Great Pacific Garbage Patch is the largest of all five. Located between Hawaii and California, it covers more than 1.6 million square kilometers (about three times the size of France). There are more than 1.8 trillion pieces of plastic (80,000 tons) there, a number which has most likely increased since its last calculation. This is very dangerous as it not only pollutes the ocean, but marine animals may confuse microplastics for food, which can be deadly to them, or they may become trapped or choked by large pieces of trash. This is also dangerous for humans due to the food chain, as when humans consume fish from this area, they may also be consuming the microplastics that the fish ate.

Background Information

Harms of plastic pollution

Plastic waste, when not properly disposed of, can cause serious damage to the environment. There are three methods of disposing of plastic-recycling, landfills, or incinerators. Recycling has its benefits,

as the plastic does not go to waste. However, only 9% of plastic produced between 1950 and 2015 was recycled. The main reason for this is contamination of plastic by food or other materials before it is thrown away, making it unsuitable for recycling.

Actions already taken

Plastic pollution has in recent times become a hotly-debated issue in many countries, with some of these countries taking action to work toward resolving the issue. In North America, Vancouver, Canada, has already banned plastic straws, with a goal of banning solid waste by 2040. Additionally, the United States has placed bans or is proposing bans on single-use plastic bags and straws in major cities such as Seattle, New York City, and San Francisco. In Europe, the European Union plans to make all plastic packaging recyclable by 2030. In Asia, India, a major producer of plastic, took a massive step forward when they banned all single-use plastics in 2017.

Major Countries and Organizations Involved

China

China is a major industrial producer and one of the top 5 major producers of plastic, as well as a notorious source of pollution. They have also long been a location for other countries to send their unwanted plastics to. However, in November of 2017, China began turning away other nations' plastic, which led to that unwanted plastic being sent to neighboring nations such as Vietnam and South Korea. This caused a major problem, as those nations lack the infrastructure to process all of this plastic, leading to the plastic piling up into what will become 111 million tons of waste by 2030.

Indonesia

Indonesia is one of the top producers of plastic in the world, second to China. It creates 200,000 tons of plastic each year, roughly 17% of the world's total plastic waste per year. In addition, four Indonesian rivers, the Brantas, Solo, Serayu and Progo, are among the top 20 most polluted rivers in the world. Although Indonesia contains 6% of the world's fresh water, the public water is contaminated with E. Coli and other harmful bacteria, rendering it virtually undrinkable. Therefore, most Indonesians rely upon bottled water for drinking, contributing to the large amounts of plastic waste. Although their situation with plastic waste has become a problem, the government has begun to take steps to reduce waste there, such as setting aside 1 billion dollars a year to reduce the amount of plastic waste contaminating water sources, as well as being committed to decreasing plastic usage by 70% by 2025. They have also come up with creative solutions to solving the problems, such as constructing inexpensive, durable roads out of plastic waste, and public education campaigns as well as increasing charges on plastic bags.

Philippines

Also one of the top producers of plastic in the world, the Philippines struggles with a major plastic waste problem, caused by a few main factors. For example, 21.6% of the population lives below the poverty line as of 2015, so the low cost of plastic makes it an ideal material for the poor. Additionally, with weak national infrastructure, there is not an effective waste disposal system in place to deal with the massive amounts of trash. Organizations such as the WWF (World Wide Fund for Nature) are currently sponsoring initiatives such as “coastal cleanups” to help reduce the waste there. The Filipino government is also working on addressing the issue in ways such as making cleaning up marine litter a government priority, and recycling plastic into building benches.

United States

As a major manufacturing and commercial country, the US is one of the top plastic producers of the world, currently producing around 37.83 million tons of plastic per year. They do have the infrastructure to process and manage plastic waste, but still contribute to around 0.86% of the world’s total mismanaged plastic waste. As it is currently a popular issue in the United States, with companies based there such as the coffee chain. Starbucks taking action to reduce plastic waste, there are several organizations based there that are heavily involved in efforts to clean up land and oceans from plastic.

Clear Blue Sea

Clear Blue Sea is a non-profit NGO with the mission of ridding the oceans of microplastic and macroplastic and restoring the health of the oceans and marine life, as well as supporting SDG 14: Conserve and sustainably use oceans, seas, and marine resources for sustainable development. They are working to secure crowdfunding for a technological device called the Floating Robot for Eliminating Debris (FRED), which can clean the oceans of plastic using renewable energy without putting humans at risk.

Greenpeace

A widely known international NGO founded in 1971, with more than 2.8 million members, with the goal of solving a wide variety of environmental issues, including plastic pollution. An example of action they have taken on plastic pollution is a global petition to encourage governments to end plastic waste.

One Green Planet

One Green Planet is an independently operated online platform dedicated to teaching consumers ways to reduce environmental impact. Most of their actions revolve around encouraging readers of

their website to make more environmentally conscious choices, and founding the #CrushPlastic movement.

Timeline of Events

Date	Description of event
1862	First man-made plastic compound made by Alexander Parkes debuts
1925	The word “plastic” first introduced
1971	Greenpeace founded
1979	Plastic grocery bags introduced in US
1980s	Plastics industry begins to encourage consumers to recycle plastics
1997	Great Pacific Garbage Patch discovered
2002	Bangladesh becomes the first country to ban plastic bags
2008	The world’s population discards over 3.5 million tons of plastic bags
10/1/2012	San Francisco becomes the first US city to ban plastic bags
10/26/2018	EU Parliament approves single-use plastic ban
10/29/2018	New Plastics Economy Global Commitment founded

Relevant UN Resolutions and Treaties

- Sustainable Consumption and Production, 3 August 2016 (UNEP/EA.2/Res.8)
- Oceans and Seas, 4 August 2016, (UNEP/EA.2/Res.10)
- Marine Plastic Litter and Microplastics, 4 August 2016, (UNEP/EA.2/Res.10)

Possible Solutions

Encourage countries to increase taxes on plastic items in order to discourage plastic use by consumers. It directly solves the issue at hand as it will discourage consumers from using plastics, as well as provide additional tax incentives for the government. Some disadvantages, however, are that it may be difficult to convince private companies to adopt this solution as many

companies use plastic in their products and taxing them could discourage economic activity, and the tax may be difficult to implement. This outcome could be avoided by rewarding companies that make efforts to follow plastic reduction guidelines.

Promote international PR campaigns to advocate for the use of reusable materials rather than plastic. It can solve the issue at hand as it increases consumer awareness of the benefits of reusable materials and the harm of using plastics. Some disadvantages, however, are that similar PR campaigns have not been successful in the past, so it may be difficult to convince governments to continue these campaigns.

Encourage discussions, such as petitions, assemblies, and national declarations by many nations to call for action in the UN to pass further resolutions decreasing plastic usage. This solution most directly targets the issue of international cooperation, as it is aimed at global change by multiple countries working together. Some limitations of this idea, however, may be that it will be difficult to convince countries, especially those who are large-scale producers of plastic, to give attention and effort to solving this issue.

Implement new technological inventions to address the plastic waste issue. One example of this is the Floating Robot for Eliminating Debris (FRED), used by Clear Blue Sea, a nonprofit (see “Involved Organizations”). FRED is a marine robot that is completely sun and wind-powered, 40 feet by 80 feet, and wing sails to harvest plastic debris from the ocean. It has capabilities such as the ability to stop debris collection in storms to avoid further ocean pollution or damage, energy storage for areas without wind or solar power, collecting microplastics and large pieces of plastic, alerting and rescuing animals in distress, and depositing plastic back on land. Possible solutions related to this are fundraising efforts or grants to build more of such devices or to sponsor scientists to design and build more of these innovative solutions. Pros of this solution are that it is innovative and effective if successfully funded, and can be used by a variety of groups efficiently without endangering humans. Some issues with this are that devices like this may be difficult to fund and mass-produce.

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